Claims Listing

1. (Canceled) An implantable stent comprising:

a tubular member having an interior surface and an exterior surface.

at least one of said surfaces being hydrophobic to a body fluid in that the contact angle between a droplet of said fluid and said at least one surface is greater than 90°, and

a region of said at least one surface including an array of microstructures or nanostructures that covers first portions of said surface, said array causing said region to have a dynamically controllable hydrophobicity.

2. (Canceled) The stent of claim 1, further including a control device affixed to said tubular member for varying said hydrophobicity.

3. (Original) The stent of claim 28, wherein said control device comprises an electronic device or an optical device.

4. (Original) The stent of claim 3, wherein said control device is remotely actuatable from an external source.

5. (Canceled) The stent of claim 1, wherein said array leaves second portions of said surface exposed, and further including a chemically active substance adhered to at least one of said exposed second portions.

6. (Canceled) The stent of claim 5, wherein said substance comprises a pharmacological agent or a drug.

7. (Canceled) The stent of claim 6, further including a control device affixed to said tubular member, said device being capable of releasing said agent or drug from said at least one second portion.

8. (Currently Amended) An implantable stent comprising:

a tubular member having an interior surface and an exterior surface,

at least one of said surfaces being hydrophobic to a body fluid in that the contact angle between a droplet of said fluid and said at least one surface is greater than 90°, and

a region of said at least one surface including an array of microstructures or nanostructures that covers first portions of said surface and leaves second portions exposed, said array causing said region to have a dynamically controllable hydrophobicity, ~~The stent of claim 7,~~ further including

a chemically active substance adhered to at least one of said exposed second portions, said said substance comprising a pharmacological agent or a drug,

an electrically conductive substrate that is configured to be electrically isolated from body fluid in contact with said array of microstructures or nanostructures, and

a control device affixed to said tubular member for varying said hydrophobicity, wherein said control device is capable of applying a voltage between said array and said substrate to vary the penetration of the interstices of said array by said fluid, thereby causing release of said agent or drug into said fluid.

9. (Currently Amended) The stent of claim 18, wherein said array leaves second portions of said surface exposed, and further including

means for electrically isolating said array into laterally separate spatial zones,

at least two of said zones containing chemically active substances adhered to the exposed second portions thereof, and

wherein said control device is capable of causing the release of said substances of the separate zones at different times.

10. (Original) The stent of claim 9, wherein said substances are the same chemically active substances of the same or a different dose.

11. (Original) The stent of claim 9, wherein said substances are different chemically active substances.

12. (Currently Amended) The stent of claim ~~+8~~, further including means for altering the shape of said stent *in vivo*.

13. (Original) The stent of claim 12, wherein said altering means is capable of changing the diameter of said tubular member.

14. (Currently Amended) The stent of claim ~~+8~~, wherein said tubular member has an elongated slot that is coextensive with its length, thereby forming a pair of elongated edges that are movable relative to one another, and the stent further comprising a plurality of electrically controllable structures thereon, the structures capable of moving said edges and releasably latching said edges.

15. (Currently Amended) The stent of claim ~~+8~~, wherein said tubular member comprises a semiconductor substrate and said array of microstructures or nanostructures is disposed on said substrate.

16. The stent of claim 15, wherein said tubular member further comprises a layer disposed on said substrate, said substrate and said layer having different thermal expansion coefficients.

17. (Original) The stent of claim 16, wherein said microstructures or nanostructures have at least one dimension that is in the range of 4 μm to 20 nm.

18. (Original) An implantable stent comprising

a tubular member including a conducting substrate, said member having an interior surface and an exterior surface,

at least one of said surfaces being hydrophobic to a body fluid in that the contact angle between a droplet of said fluid and said at least one surface is greater than 90°, and

a region of said at least one surface including an array of pillar-like microstructures or nanostructures that covers first portions of said surface, said array rendering the region to have a dynamically controllable hydrophobicity between a first state, in which said fluid is suspended over the top of said microstructures or nanostructures, and a second state, in which said fluid penetrates the interstices of said microstructures or nanostructures,

a medicinal substance adhered to an exposed second portion of said surface located in said interstices of said microstructures or nanostructures, and

a control device affixed to said tubular member for applying a voltage between said fluid and said substrate to vary said hydrophobicity, thereby releasing said substance into said body fluid when in said second state, said device being actuatable from an *ex vivo* source.

19. (Original) The stent of claim 18, wherein

said exposed second portion includes laterally separate first and second spatial zones electrically isolated from one another, each zone containing a medicinal substance adhered thereto, and

said control device is capable of causing the separate release of said substances from the first and second zones.

20. (Original) The stent of claim 19, wherein said substances adhered to said first and second zones are the same substance of the same or a different dose.

21. (Original) The stent of claim 19, wherein said substances adhered to said first and second zones are different substances.